Jingdong Zhang

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EDUCATION

School of Information Science and Engineering | Fudan University
Bachelor of Engineering | Intelligent Science and Technology Major (Excellent Class)

Core classes: Mathematical Analysis: 4.0 / 4.0 | Linear Algebra: 4.0 / 4.0
College Physics: 4.0 / 4.0 | Philosophy of Artificial Intelligence: 4.0 / 4.0
Deep Learning: theory and applications: 4.0 / 4.0 | Computer Vision: 4.0 / 4.0
Machine Learning: 4.0 / 4.0 | Image Processing and Machine Vision: 4.0 / 4.0

PUBLICATIONS

- *Task Label Discovery via Joint Local-Batch and Global-Token Search for Partially Annotated Multi-Task Dense Prediction* (**Jingdong Zhang***, Hanrong Ye, Dan Xu)
  CVPR2023 (IEEE Conference on Computer Vision and Pattern Recognition) **Under review**
  https://drive.google.com/file/d/13al97SuOVPVTTgIPJTW7hyZ3_pcNKd7y/view?usp=sharing

- *Enhancing Task-Related Features Learning with Task Agnostic-to-Specific Attention for Multi-task Dense Prediction* (**Jingdong Zhang**, Jiayuan Fan*, Peng Ye, Bo Zhang, Hancheng Ye, Baopu Li, Yancheng Cai, Tao Chen)
  TPAMI (IEEE Transactions on Pattern Analysis and Machine Intelligence) **Under review**
  https://drive.google.com/file/d/18WlUogxUvSY_7TTYHR32l4gkpdmguSrp/view?usp=sharing

- *Rethinking Cross-Domain Pedestrian Detection: A Background-Focused Distribution Alignment Framework for One-Stage Detectors* (Yancheng Cai, Bo Zhang, Baopu Li, Tao Chen*, hongliang Yan, **Jingdong Zhang**, Jiahao Xu)
  TIP (IEEE Transactions on Image Processing) **Under review**
  https://drive.google.com/file/d/1bKbrYWeyks8R71IK0a7BJ77dX9dGL-rF/view?usp=sharing

RESEARCH EXPERIENCES

- **Mechanical Systems Control Lab | University of California, Berkeley | Research Assistant**
  Map Reconstruction in Self-driving *Advisor: Prof. Wei Zhan, UCB* Aug. 2022 ~ Recent
  - Try to reconstruct high-definition (HD) maps from data produced by multiple sensors.
  - Propose to leverage multi-task strategy in the perception stage, and mutually estimate both semantic distribution with geometry relations to form accurate 3D representations, this is an ongoing project.

- **Scene Parsing and Multi-task Learning | Hong Kong University of Science and Technology | Research Assistant**
  Multi-task Learning with Partially Annotated Data *Advisor: Prof. Dan Xu, HKUST* Feb. 2022 ~ Recent
  - Design a method for Multi-Task Learning with partially annotated data in scene parsing, which aims to give pixel-wise pseudo labels for unsupervised dense predictions.
  - Utilizing both Local-Batch and Global-Token Search in feature space to produce two types of complementary pseudo labels, and propose a dynamic weighted optimization strategy to leverage their supervision.
  - This work has been submitted to CVPR2023 (*Task Label Discovery via Joint Local-Batch and Global-Token Search for Partially Annotated Multi-Task Dense Prediction*).

- **Embedded Deep Learning and Visual Analysis Lab | Fudan University | Research Assistant**
  Multi-task Learning for Dense Prediction Tasks *Advisor: Prof. Tao Chen, FDU* Jul. 2021 ~ Recent

- **Multi-Task Learning for Dense Predictions:** Propose a Multi-task Learning (MTL) framework for dense prediction tasks (semantic segmentation, depth estimation, etc.). The proposed method reveals the importance of task-related representations in MTL frameworks. Submitted to TPAMI (*Enhancing Task-Related Features Learning with Task Agnostic-to-Specific Attention for Multi-task Dense Prediction*).
- **Cross-domain Pedestrian Detection:** Propose a Pedestrian Detection (PD) framework focused on solving the misalignment issues of background features to achieve Domain Adaptation (DA). Submitted to TIP (*Rethinking Cross-domain Pedestrian Detection: A Background-focused Distribution Alignment Framework for One-Stage Detectors*).

AWARDS

- Outstanding Student of Fudan University in 2019-2020 Academic year. 2020
- The first prize of Advanced Driving Assistance System (ADAS) National Competition by Dell Corporation. 2021
- The second prize of outstanding Undergraduate Student Scholarship of FDU in 2019-2020 Academic year. 2020
- The third prize of outstanding Undergraduate Student Scholarship of FDU in 2021-2022 Academic year. 2022

COURSE PROJECTS

- **Exploring for Computer Vision Tasks** Advisor: Prof. Li Zhang, FDU Jun. 2022
  https://drive.google.com/drive/folders/1keTvPq89I62dYWVeP1-RyBGc62N_Inb2?usp=sharing
  - Study computer vision tasks including Image Classification, Object Detection and Semantic Segmentation.
  - Image Classification: Study different data augmentations, network architectures including CNN and Transformer, and test the performance of using pretrained Mask-AutoEncoder for initialization.
  - Object Detection: Compare the differences between one-stage and two-stage frameworks and test different types of initializations for fine-tuning.
  - Semantic Segmentation: Study the adaptability models on different domain distributions.

- **Advanced Driving Assistance System (ADAS) National Competition** May. 2021
  https://drive.google.com/drive/folders/1o6srvlK4iZ4pHeGtXqO4MSW2daPxINkP?usp=sharing
  - Team Leader.
  - Propose a framework combining real-time detection and semantic in perception stage, and make planning and controlling accordingly to accomplish the task and we won the first prize of the competition.

- **Kaggle Competition of Style Transfer** Advisor: Prof. Tao Chen, FDU May. 2022
  https://drive.google.com/file/d/1V8a3s7JCWQfs4DU9i-d6tTQOzcG4X8rm/view?usp=sharing
  - Team Leader.
  - Propose a Multi-Path Aggregation generator for cycleGAN training which takes full advantage of high-level semantic information and low-level texture information in a parallel way. The proposed method achieved 28 out of 141 teams on Kaggle's official ranking.

ACADEMIC SERVICES

- Reviewer and Emergency Reviewer of CVPR. 2022~2023
- Reviewer and Emergency Reviewer of ECCV. 2022
- Team leader of Advanced Driving Assistance System (ADAS) National Competition by Dell Corporation. 2021
- Organizing committee member in the class, in charge of organizing academic activities. 2020

SKILLS:

- Programming Languages: C, Python, Matlab.
- Deep Learning Frameworks: PyTorch.